A.3.6 Planetary Major Equipment Program

1. Scope of Program

This program element allows proposals for upgrading the analytical, computational, telescopic, and other instrumentation required by investigations sponsored by the Solar System Exploration programs, including Exobiology. New major instrumentation that is necessary for the conduct and/or quality of proposed research or that would significantly benefit the broad science community, may also be proposed. Major Equipment proposals may be submitted in conjunction with new scientific research proposals or as an augmentation to multiple year proposals that are currently funded through OSS for support of the Solar System Exploration science theme or Exobiology program element. Major Equipment proposals that are not affiliated with such OSS research proposals will not be considered.

It is estimated that $1M will be available through this program element to support approximately 20 grants. In order to make the best possible use of the funds that may be available, proposers who request funds for equipment are encouraged to seek cost sharing where appropriate and to propose collective use where that is reasonable, i.e., instruments that could be made available for use by other qualified members of the planetary science community. Cost-shared proposals would be especially attractive for very high cost instruments; the partners of such proposals must provide a written statement regarding long term funding and institutional commitment.

However, proposers need to recognize that NASA interprets cost-sharing arrangements as joint ownership, and, therefore, NASA has the option to retain title to instruments acquired under such arrangements. Issues of ownership and title may be especially complicated under arrangements that involve other Federal agencies (e.g., the National Science Foundation). When joint ownership cannot be avoided, and the requested NASA contribution will exceed $1000, agreement regarding NASA's retention of its option to take title, and the conditions under which the option (if retained) will be exercised, shall be reached and documented prior to purchase.

2. Exclusions and Restrictions

• Instrumentation or support equipment costing less than approximately $20K is not considered major; requests for such items should be included in the body of the research proposal submitted to the appropriate Solar System Exploration program element in Section A.3 of this ROSS-98 NRA.

• Instrumentation or equipment considered inappropriate for this Major Equipment program element includes personal computers or computer peripherals (unless these are

integral parts of the instrumentation requested), miscellaneous support equipment, support contracts, and equipment repair where the repair does not involve significant enhancement of the instrument's basic capabilities, nor should funds be sought to support maintenance and continued operations of any instrument requested.

• In no event will proposals be considered that seek to design, develop, test, or evaluate new instruments that are to be considered for sale.

3. Proposal Requirements

- Format

A proposal for major equipment should be written so that it can be reviewed as a stand-alone proposal, although it will be reviewed in connection with the appropriate science proposal. This is especially important for proposers who are operating under multiple year awards and who normally would submit only a progress report to request an additional funding allotment to complete a period of performance. This is also important because Major Equipment requests may also be reviewed by a multidisciplinary group external to the normal review process. All proposals should contain a short abstract and sections on project description, management, and costs.

- Objectives

Types and/or classes of instruments that are considered appropriate to be proposed for this program element are listed below, although requests for instruments not specifically identified in the list will receive equal consideration. Note that this list is not intended to be inclusive, but rather illustrative of the range of instrument types (and hence costs) that are appropriate:

· Solid source, light element, and noble gas mass spectrometers;
· Electron microprobe;
· Scanning electron microscope;
· Transmission electron microscope;
· Camera-class ion microprobe;
· Activation analysis equipment;
· X-ray fluorescence analyzer;
· Organic analysis instrumentation;
· Static high pressure instrumentation;
· Portable high-speed charge-coupled device for occultation measurements;
· Telescopic instrumentation;
· High resolution infrared spectrometer;

- Large format optical charge-coupled device (2000 x 2000 pixels) with coronograph;
- Faint object infrared spectrometer;
- Near infrared array camera with coronograph;
- Coolable white cells;
- Instrumentation for planetary atmospheres laboratory studies; Tunable dye-laser high resolution spectrometer; and
- Instrumentation for measurement of gas phase reaction rates, photochemical reaction rates and branching rates, and collisional disassociation, ionization, or recombination cross-sections.

- Project Description

The main body of the proposal should first identify the instrument to be acquired or developed and the type of use proposed. It should contain a strong justification, including a description of why the instrument is necessary for the investigator's research or how it would enhance that research, citing specific examples wherever possible. It should also demonstrate why the enhanced capability is important to planetary science in general. If an instrument is proposed for the benefit of the science community, the justification should emphasize, as well, how the enhanced capability would benefit the larger planetary science community. All justifications should address how the requested instrument relates to existing capabilities, both in the investigator's own laboratory and to others in the community.

Any substantial collaboration with individuals not referred to in the budget, or use of consultants, should be described. Any anticipated cost-sharing or substantial institutional contributions should be described. It should be noted that cost sharing (between NASA and other agencies such as the Department of Energy or the National Science Foundation) is encouraged to the extent that NASA's share of the cost will ensure adequate use by NASA investigators. This aspect of any proposed cost-sharing acquisition must be discussed in the proposal. If other agencies have been approached or have made tentative commitments, the proposal should document that and provide names and telephone numbers of appropriate officers in those agencies who can discuss their agencies' interest.

When it is expected that the acquisition or development of an instrument or facility will require more than one year, the proposal should cover the complete project but with a clear distinction between the efforts involved in each requested year.

- Instrument Management and User Access

In addition to use by Principal Investigator, if the proposed instrumentation is intended to be offered for use by the scientific community at large, a management section is required that should describe how the requested instrument would be managed. This description should include a statement of the percentage of the instrument's time that would be available to other users and a general statement regarding aspects of user access, such as time of day when access would be granted, whether access would be “hands on” or only by an operator or collaborator in the PI's group, any costs to be charged for use and how costing would be handled, and how users would gain access (personal communication, proposal, etc.).

Requests for an instrument should specify how the instrument is to be used, whether by Principal Investigator (PI) and the PI research group only, or by the PI group as well as other investigators (facility instrument). These categories are defined below.

Investigator Instrument: An investigator instrument is an instrument acquired or developed by an investigator to support his or her research where he or she has full authority for its exclusive use and where there are no commitments to make the instrument available to other investigators.

Investigator Facility Instrument: An investigator facility instrument is an instrument acquired or developed by an investigator to support his or her research where an identified portion of its time is to be reserved for use by the PI but where an additional, specified portion of its time will be made available to other knowledgeable NASA planetary program investigators, and where all details or access, method of use, charging, and data rights are determined by the PI in negotiation with potential users.

Regional Facility Instrument: A regional facility instrument is an instrument of considerable cost or one that is limited to one location by virtue of its use on a specific beam source or telescope facility, but is acquired by a PI to support his or her research. A significant, specified portion of a regional facility instrument's time will be reserved for use by the PI, but a significant, specified portion of its time must also be available to other planetary program investigators. Unlike an investigator facility instrument, however, all details of access, announcement of availability, assistance to be provided on its use and methods of use (whether hands on or by an operator), charges, and data rights must be documented and agreed to by NASA and the sponsoring institution before NASA support is provided.

- Costs

If the proposed instrument is to be acquired from commercial sources, only those costs directly associated with the acquisition, installation, and check-out of the instrument should be requested. No costs for maintenance or operation beyond the check-out period should be included. These must be requested in research proposals submitted to the appropriate discipline programs. If the instrument is to be developed by the investigator, all costs associated with the development and final check-out should be requested. Multiple year requests would be expected in these cases. In all cases, however, provision of an adequately documented cost section will facilitate evaluation, and, if selected, improve the likelihood of a timely award. It is especially important that each relevant cost category (Direct Labor, Fringe Benefits, Overhead, and Other Direct Costs such as Computer Use, Equipment, Travel, etc.) be detailed, explained, and substantiated in the proposal.

4. Programmatic Considerations

Evaluation factors will be those employed in evaluation of proposals received in response to this NRA, given in Section C.1.4 of Appendix C with the following additions. In considering the relevance of the Major Equipment request to NASA's planetary and exobiology sciences objectives, attention will be focused on the added value that would be gained by the addition of the instrument capability to ongoing and anticipated research of the proposer, in particular, and to NASA's objectives in general. In evaluating the intrinsic merit of the request, additional factors that will be considered of equal weight are the scientific merit of the original proposal to which the request is tied and the value that the new or enhanced capability would add to science and/or education beyond that offered specifically to planetary science.

The process to be followed in the evaluation is to have the Major Equipment request reviewed by each discipline peer review panel during the full proposal review and in the context of proposed research proposed. Those requests that most clearly meet the criteria outlined in terms of scientific merit, program balance, and funding as judged by the peer panels will considered by the OSS Discipline Scientist on the basis of programmatic merit. Funding recommendations will then be referred to the Director, Research Program Management Division for final selection.

A requests selected for Major Equipment support will be funded through augmentation to the grant/contract that provide support for the Principal Investigator's basic research program. If such a request involves a multiple year period of performance for its development activities, an annual funding allotment to the basic continuing award will be provided only upon receipt, review, and approval of a progress report and up-dated budget and/or statement of work as may be appropriate.

As noted in Section 1 of this program element, a Major Equipment proposal is to be submitted only in conjunction with a new scientific research proposal, or as an augmentation to an existing multiple year investigation currently funded in support of the OSS Solar System Exploration science theme. Therefore, the schedules for submission of Major Equipment NOI's and proposals are the same as those given in Table 1 of the cover letter of this NRA for the relevant Solar System Exploration program elements. The World Wide Web site for submitting both the NOI and proposal *Cover Page/Proposal Summary* (see Appendix C.5.3) is <http://cass.jsc.nasa.gov/panel/>; proposers without access to the Web or who experience difficulty in using this site may contact The Lunar and Planetary Institute by E-mail at <panel@lpi.jsc.nasa.gov> or by phone at (281)486-2156 or-2166 for assistance. Hard copies of the proposals are to be delivered to:

ROSS-98 NASA Research Announcement
Planetary Major Equipment Program
The Lunar and Planetary Institute
3600 Bay Area Boulevard
Houston, TX 77058
Phone number for commercial delivery: (713) 486-2166

Additional information about this Major Equipment program element may be obtained from the respective Discipline Scientists for the program elements in Section A.3 of this ROSS-98 NRA to which the central scientific research proposal has been submitted, or is relevant in those cases where a Major Equipment supplement is planned for an existing multiple year award.